Large Data Visualization: Mother of All Databases

Fusion of Geospatial Temporal Data Types for Situational Awareness

Large Data Visualization of multi-int (multiple data types) geospatial temporal sensor data is a DoD Global Information Grid (GIG) transformational concept to enable real-time fusion of information for theater situational awareness. The incorporation of high-definition progressive video, multi-spectral and high-resolution imagery with disparate information types in a geospatial temporal manner *(.geo)* at extremely fast access speeds enables sharing of vast levels of knowledge among planners. All data types are referenced to a space-time system to allow the user, in real time, to flexibly explore the information space at a high level *(big picture)* and then drill down to detail *(specifics)*. The Naval Research Laboratory is functionally prototyping this scalable framework that flexibly links analysts, decision-makers, and warfighters across a global backbone with real-time or archived large data. NRL's Mother of All Databases (MoADB) framework uses state-of-the-art peer-to-peer and semantic agent driven software and hardware to provide decision makers the unique ability to interactively explore large databases of visual and other information in a Joint Operations Center with a "wrap-around" immersive display. High resolution virtual presence teleconferencing augments the framework to bring geographically distributed participants together for collaborative data conferencing needed in planning and execution of critical scenarios.

BENEFITS:

- All data are realistically presented in a 3-D immersive display in a user defined context regarding viewing angle and spatial orientation
- Presents multi-terabyte, high-resolution UAV, high-altitude, and satellite imagery and video to globally distributed users collaborating via high quality telepresence conferencing services
- Scalability to much larger databases (peta to exabytes); future bandwidth upgrades (40 Gbps)
- Ability to display 3-D models of buildings and man-made features combined with immersive wall-sized display enhances the feeling of "being there"

APPLICATIONS:

- Holistic Target Analysis; Military Operations in Urban Terrain; Fast Reaction Operations
- Commercial real estate; Agricultural Planning; Homeland Security
- Global Security Operations such as the Global War on Terror; Counter WMD
- Reachback and traceback features for comparison of real-time with historical data

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